

# Jaemin Choi

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## Education

### KAIST

Daejeon, South Korea

M.S. IN SCHOOL OF COMPUTING (EXPECTED)

Sep. 2021 - Aug. 2023

- CS major, GPA: 4.01 / 4.3
- Advisor: Prof. Jeehoon Kang
- Lab: Concurrency and Parallelism Laboratory (<https://cp.kaist.ac.kr/>)
- Relevant Coursework: CS504 Computational Geometry, CS520 Theory of Programming Language, CS560 Database System, CS592 Program Analysis

### KAIST

Daejeon, South Korea

B.S. IN SCHOOL OF COMPUTING

Mar. 2017 - Aug. 2021

- CS & Math double major, GPA: 3.86 / 4.3
- Relevant Coursework (CS): CS500 Design and Analysis of Algorithms, CS422 Computation Theory, CS420 Compiler Design, CS311 Computer Organization, CS330 Operating Systems and Lab, CS230 System Programming
- Relevant Coursework (Math): MAS477 Graph Theory, MAS480 Matroid Theory, MAS311 Modern Algebra I, MAS331 Topology, MAS350 Probability Theory, MAS212 Linear Algebra, MAS241/242 Analysis

## Skills

<b>Programming</b>	Python, Rust, C++
<b>System</b>	Linux
<b>Version Control</b>	Git / GitHub / GitLab
<b>Cloud</b>	Heroku
<b>Misc</b>	Competitive Programming, Coq, LaTeX
<b>Language</b>	Korean (native), English (fluent, TOEFL 103)

## Experience

### KAIST

Daejeon, South Korea

TEACHING ASSISTANT

Mar. 2021 - Dec. 2021

- CS230 System Programming (<https://cp-git.kaist.ac.kr/cs230/cs230>)
- CS220 Programming Principles (<https://cp-git.kaist.ac.kr/cs220/cs220-haskell>)

## Publication

### Formal Verification of Chase-Lev Deque in Concurrent Separation Logic

JAEMIN CHOI

2023

MS Thesis.

- Formal proof of the correctness of concurrent Chase-Lev work-stealing deque.
- To my knowledge, the first formal verification of Chase-Lev deque that (1) is mechanized in a proof assistant, (2) uses a realistic & unrestrictive implementation, and (3) proves a strong specification.

### Modular Verification of Safe Memory Reclamation in Concurrent Separation Logic

JAEHWANG JUNG, JANGGUN LEE, JAEMIN CHOI, JAEWOO KIM, SUNHO PARK, JEEHOON KANG

2023

Submitted to *ACM SIGPLAN conference on Object-oriented Programming, Systems, Languages, and Applications (OOPSLA)* 2023.

- Formally verified modular specification of hazard pointers and RCU, making it easy to extend a data structure's verification to use safe memory reclamation (SMR) schemes.
- I helped verify the SMR schemes, and verified Chase-Lev deque with SMR.

### Compass: Strong and Compositional Library Specifications in Relaxed Memory Separation Logic

HOANG-HAI DANG, JAEHWANG JUNG, JAEMIN CHOI, DUC-THAN NGUYEN, WILLIAM MANSKY, JEEHOON KANG, DEREK DREYER

2022

*ACM SIGPLAN conference on Programming Languages Design and Implementation (PLDI)* 2022.

- Framework for strong specifications of data structures in relaxed memory model.
- I verified Treiber's stack with the Compass specification.
- Available at: <https://dl.acm.org/doi/10.1145/3519939.3523451>

# Honors & Awards

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## INTERNATIONAL AWARDS

2022 **26th Place**, ICPC World Finals Dhaka

*Dhaka, Bangladesh*

## DOMESTIC AWARDS

2020 **2nd Place**, ICPC Seoul Regional

*Online*

2020 **3rd Place Award**, Samsung Collegiate Programming Cup

*Online*

2019 **7th Place**, ICPC Seoul Regional

*Seoul, South Korea*

2019 **4th Place Award**, Samsung Collegiate Programming Cup

*Seoul, South Korea*

2018 **11th Place**, ICPC Seoul Regional

*Seoul, South Korea*

2018 **Winner**, KAIST ACM-ICPC Mock Competition

*Daejeon, South Korea*

# Projects

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## miniCS: Critical Section Minimization

ACADEMIC PROJECT

*Oct. 2019 - Dec. 2019*

- Group project for CS454: Artificial Intelligence Based Software Engineering.
- Uses genetic algorithm to insert locks and unlocks in a given C++ program, with the goal of minimizing the critical sections.
- I employed Clang AST to generate the candidate populations for genetic algorithm.
- Available at: <https://github.com/hyunsukimsokcho/miniCS>

## no: Slack Bot

PERSONAL PROJECT

*Apr. 2018 - Jun. 2022*

- General-purpose Slack bot supporting various features including todo list, highly configurable Wordle game, image storage, and more.
- Wraps Slack's JSON-based API into a higher-level Python API so that others can more easily contribute.
- Implemented in Python with Slack events API and Dropbox API, and hosted on Heroku server.
- (Yes, the bot is actually named "no")

# Extracurricular Activity

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## Samsung Software Membership

MEMBER

*Seoul, South Korea*

*Aug. 2020 -*

- Membership for Samsung Collegiate Programming Cup award winners & equivalents.
- Wrote posts about advanced algorithms.

## Competitive Programming Problem Writer

*Jun. 2017 -*

- Problem writer for several programming contests, including:
  - 2017, 2021, 2022 UCPC Programming Contest
  - 2017, 2019, 2020, 2021 KAIST ACM-ICPC Mock Competition
  - 2021 KAIST RUN Spring Contest

## RUN (Algorithmic Problem Solving Club of KAIST)

MEMBER & PRESIDENT IN 2020

*Daejeon, South Korea*

*Mar. 2017 - Feb. 2021*

- Gained knowledge and experience about competitive programming and algorithms.
- Won awards in several programming contests.
- Problem author of the school programming contests for 4 years.
- Worked as the club president in 2020: taught basic algorithms, and organized 2020 KAIST ACM-ICPC Mock Competition.